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Sequence Listing was accepted.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)  
217-9197 (toll free).

Reviewer: Keisha Douglas

Timestamp: Tue Aug 28 14:10:58 EDT 2007

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Application No: 10594766 Version No: 1.1

Input Set:

Output Set:

Started: 2007-08-28 14:09:57.965  
Finished: 2007-08-28 14:09:58.919  
Elapsed: 0 hr(s) 0 min(s) 0 sec(s) 954 ms  
Total Warnings: 8  
Total Errors: 0  
No. of SeqIDs Defined: 32  
Actual SeqID Count: 32

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)

# SEQUENCE LISTING

<110> KAMINSKI, PIERRE-ALEXANDRE

<120> N-DEOXYRIBOSYL TRANSFERASES OF LACTOBACILLUS FERMENTUM  
AND USE FOR THE ENZYMATIC SYNTHESIS OF  
2',3'-DIDEOXYNUCLEOSIDES AND  
2',3'-DIDEHYDRO-2',3'-DIDEOXYNUCLEOSIDES

<130> 296011US

<140> 10/594,766

<141> 2006-09-29

<150> PCT/FR05/000743

<151> 2005-03-29

<150> FR 0403319

<151> 2004-03-30

<160> 32

<170> PatentIn Ver. 3.3

<210> 1

<211> 504

<212> DNA

<213> Lactobacillus fermentum

<400> 1

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gaagaacaac gtgcccgcac ccctcaagct ctagcccaac tagaagccaa cccgactgtc 120
ggcggtgttc accagccatt cgattttcaa tataaagatg cacgcgtaga ctccgatacct 180
gccggcgctct ttggcagcct cgaatggcaa attgccactt acaataacga cctcaacgcg 240
gtaggaactt ccgatgtctg cgttgcttta tacgatatgg accaaattga cgaaggaatt 300
tgtatggaat tggcgatgtt cgtgcgcctc cataaaccta tcgttttact accttttact 360
aagaaagata agtctgctta tgaagctaac ctaatgctag cacggggtgt aactacctgg 420
ttggaaccta atgacttttag tcccttaaaa gactttaact ttaaccaccc aatggctcaa 480
cctttcccac cattcaaggt tttc 504
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<210> 2

<211> 168

<212> PRT

<213> Lactobacillus fermentum

<400> 2

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Ser Phe Phe Asn Glu Glu Gln Arg Ala Arg Ile Pro Gln Ala Leu Ala
      20             25             30

Gln Leu Glu Ala Asn Pro Thr Val Gly Val Val His Gln Pro Phe Asp
      35             40             45

Phe Gln Tyr Lys Asp Ala Arg Val Asp Ser Asp Pro Ala Gly Val Phe
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50	55	60
Gly Ser Leu Glu Trp Gln Ile Ala Thr Tyr Asn Asn Asp Leu Asn Ala		
65	70	75 80
Val Gly Thr Ser Asp Val Cys Val Ala Leu Tyr Asp Met Asp Gln Ile		
	85	90 95
Asp Glu Gly Ile Cys Met Glu Ile Gly Met Phe Val Ala Leu His Lys		
	100	105 110
Pro Ile Val Leu Leu Pro Phe Thr Lys Lys Asp Lys Ser Ala Tyr Glu		
	115	120 125
Ala Asn Leu Met Leu Ala Arg Gly Val Thr Thr Trp Leu Glu Pro Asn		
	130	135 140
Asp Phe Ser Pro Leu Lys Asp Phe Asn Phe Asn His Pro Met Ala Gln		
145	150	155 160
Pro Phe Pro Pro Phe Lys Val Phe		
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<210> 3  
 <211> 504  
 <212> DNA  
 <213> Lactobacillus fermentum

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 ggcgttggtc accagccatt cgattttcaa tataaagatg cacgcgtaga ctccgatacct 180  
 gccggcgtct ttggcagcct cgaatggcaa attgccactt acaataacga cctcaacgcg 240  
 gtaggaactt ccgatgtctg cgttgcttta tacgatatgg accaaattga cgaaggaatt 300  
 tgtatggaat tggcagtggt cgtcgccctc cataaaccta tcgttttact accttttact 360  
 aagaaagata agtctgctta tgaagctaac ctaatgctag cacggggtgt aactacctgg 420  
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 cctttccac cattcaaggt tttc 504

<210> 4  
 <211> 168  
 <212> PRT  
 <213> Lactobacillus fermentum

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 Ser Phe Phe Asn Glu Glu Gln Arg Ala Arg Ile Pro Gln Ala Leu Ala  
 20 25 30  
 Gln Leu Glu Ala Asn Pro Thr Val Gly Val Val His Gln Pro Phe Asp  
 35 40 45  
 Phe Gln Tyr Lys Asp Ala Arg Val Asp Ser Asp Pro Ala Gly Val Phe

50	55	60
Gly Ser Leu Glu Trp Gln Ile Ala Thr Tyr Asn Asn Asp Leu Asn Ala		
65	70	75 80
Val Gly Thr Ser Asp Val Cys Val Ala Leu Tyr Asp Met Asp Gln Ile		
	85	90 95
Asp Glu Gly Ile Cys Met Glu Ile Gly Met Phe Val Ala Leu His Lys		
	100	105 110
Pro Ile Val Leu Leu Pro Phe Thr Lys Lys Asp Lys Ser Ala Tyr Glu		
	115	120 125
Ala Asn Leu Met Leu Ala Arg Gly Val Thr Thr Trp Leu Glu Pro Asn		
	130	135 140
Asp Phe Ser Pro Leu Lys Asp Phe Asn Phe Asn His Pro Met Ala Gln		
145	150	155 160
Pro Phe Pro Pro Phe Lys Val Phe		
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<210> 5  
 <211> 39  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 5  
 caatttcaca caggaaacac atatgaccat gattacgcc 39

<210> 6  
 <211> 31  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 6  
 tgtttcctgt gtgaaattgt tatccgctca c 31

<210> 7  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

oligonucleotide

<400> 7

gatatacata tgaaaaatac cgaccagtt gc

32

<210> 8

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (1)..(2)

<223> a, t, c, g, unknown or other

<400> 8

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39

<210> 9

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
primer

<400> 9

ttaatacgac tcactatagg gg

22

<210> 10

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
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<400> 10

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<210> 11

<211> 33

<212> DNA

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oligonucleotide

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<221> modified\_base

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<223> a, t, c, g, unknown or other

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33

<210> 12

<211> 39

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (1)..(2)

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<400> 12

nnggatacctt aggttagtta gaaaaccttg aatgggtggg

39

<210> 13

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<212> PRT

<213> Lactobacillus acidophilus

<400> 13

Met Met Ala Lys Thr Lys Thr Leu Tyr Phe Gly Ala Gly Trp Phe Asn  
1 5 10 15

Glu Lys Gln Asn Lys Ala Tyr Lys Ala Ala Met Glu Ala Leu Lys Gln  
20 25 30

Asn

<210> 14

<211> 32

<212> PRT

<213> Lactobacillus helveticus

<400> 14

Met Asn Lys Lys Lys Thr Leu Tyr Phe Gly Ala Gly Trp Phe Asn Glu  
1 5 10 15

Lys Gln Asn Lys Ala Tyr Lys Glu Ala Met Ala Ala Leu Lys Glu Asn  
20 25 30

<210> 15

<211> 31

<212> PRT

<213> *Lactobacillus leichmannii*

<400> 15

Met	Pro	Lys	Lys	Thr	Ile	Tyr	Phe	Gly	Ala	Gly	Trp	Phe	Thr	Asp	Arg
1				5					10					15	

Gln	Asn	Lys	Ala	Tyr	Lys	Glu	Ala	Met	Glu	Ala	Leu	Lys	Glu	Asn
		20						25					30	

<210> 16

<211> 31

<212> PRT

<213> *Lactobacillus leichmannii*

<400> 16

Met	Pro	Lys	Lys	Thr	Ile	Tyr	Phe	Ser	Ala	Gly	Trp	Phe	Thr	Asp	Arg
1				5					10					15	

Gln	Asn	Lys	Ala	Tyr	Lys	Glu	Ala	Met	Glu	Ala	Leu	Lys	Glu	Asn
		20						25					30	

<210> 17

<211> 35

<212> PRT

<213> *Lactobacillus helveticus*

<400> 17

Met	Lys	Ala	Val	Val	Pro	Thr	Gly	Lys	Ile	Tyr	Leu	Gly	Ser	Pro	Phe
1				5					10					15	

Tyr	Ser	Asp	Ala	Gln	Arg	Glu	Arg	Ala	Ala	Lys	Ala	Lys	Glu	Leu	Leu
			20					25					30		

Ala	Lys	Asn
		35

<210> 18

<211> 22

<212> PRT

<213> *Lactobacillus gasseri*

<400> 18

Met	Thr	Lys	Gln	Lys	Thr	Val	Tyr	Phe	Gly	Ala	Gly	Trp	Phe	Thr	Glu
1				5					10					15	

Thr	Gln	Asn	Lys	Ala	Tyr
					20



<210> 19

<211> 37

<212> PRT

<213> *Lactobacillus fermentum*

<400> 19

Leu Lys Asn Thr Asp Pro Val Ala Asn Thr Lys Ile Tyr Leu Ala Thr

1 5 10 15

Ser Phe Phe Asn Glu Glu Gln Arg Ala Arg Ile Pro Gln Ala Leu Ala

20 25 30

Gln Leu Glu Ala Asn

35

<210> 20

<211> 37

<212> PRT

<213> *Lactobacillus fermentum*

<400> 20

Leu Lys Asn Thr Asp Pro Val Ala Asn Thr Lys Ile Tyr Leu Thr Thr

1 5 10 15

Ser Phe Phe Asn Glu Glu Gln Arg Ala Arg Ile Pro Gln Ala Leu Ala

20 25 30

Gln Leu Glu Ala Asn

35

<210> 21

<211> 32

<212> PRT

<213> *Oenococcus oeni*

<400> 21

Met Asn Met Ala Lys Asn Ile Tyr Leu Ala Ser Pro Phe Phe Asp Asp

1 5 10 15

Glu Gln Ile Ala Arg Val Lys Lys Ile Glu Lys Ala Leu Glu Ser Asn

20 25 30

<210> 22

<211> 28

<212> PRT

<213> *Leuconostoc mesenteroides*

<400> 22

Lys Asn Val Tyr Leu Ala Ser Pro Phe Phe Asp Lys Glu Gln Ile Glu

1	5	10	15
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Arg Val Glu Arg Val Glu Lys Ala Leu Ala Ala Asn  
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<210> 23  
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<212> PRT  
<213> *Lactobacillus plantarum*

<400> 23  
Val Tyr Leu Ala Ala Pro Phe Phe Asp Glu Ala Gln Lys Glu Arg Ile  
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Gln Gln Val Lys Ser Ala Leu Leu Ala Asn  
20 25

<210> 24  
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<213> *Lactobacillus lactis*

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Gln Ile Lys Lys  
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<210> 25  
<211> 158  
<212> PRT  
<213> *Lactobacillus helveticus*

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Lys Gln Asn Lys Ala Tyr Lys Glu Ala Met Ala Ala Leu Lys Glu Asn  
20 25 30

Pro Thr Val Asp Leu Glu Asn Ser Tyr Val Pro Leu Glu Asn Gln Tyr  
35 40 45

Lys Gly Ile Arg Ile Asp Glu His Pro Glu Tyr Leu His Asn Ile Glu  
50 55 60

Trp Ala Ser Ala Thr Tyr His Asn Asp Leu Val Gly Ile Lys Thr Ser  
65 70 75 80

Asp Val Met Leu Gly Val Tyr Leu Pro Glu Glu Glu Asp Val Gly Leu  
85 90 95

Gly Met Glu Leu Gly Tyr Ala Leu Ser Gln Gly Lys Tyr Ile Leu Leu

100	105	110
Val Ile Pro Asp Glu Asp Tyr Gly Lys Pro Ile Asn Leu Met Ser Trp		
115	120	125
Gly Val Cys Asp Asn Ala Ile Lys Ile Ser Glu Leu Lys Asp Phe Asp		
130	135	140
Phe Asn Lys Pro Arg Tyr Asn Phe Tyr Asp Gly Ala Val Tyr		
145	150	155

<210> 26  
 <211> 159  
 <212> PRT  
 <213> Lactobacillus acidophilus

<400> 26
Met Met Ala Lys Thr Lys Thr Leu Tyr Phe Gly Ala Gly Trp Phe Asn
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Glu Lys Gln Asn Lys Ala Tyr Lys Ala Ala Met Glu Ala Leu Lys Gln
20 25 30
Asn Pro Thr Val Asp Leu Glu Asn Ser Tyr Val Pro Leu Glu Asn Gln
35 40 45
Tyr Lys Asp Ile Arg Val Asp Glu His Pro Glu Tyr Leu His Asp Ile
50 55 60
Glu Trp Ala Ser Ala Thr Tyr His Asn Asp Leu Ile Gly Ile Lys Ser
65 70 75 80
Ser Asp Ile Met Leu Gly Val Tyr Leu Pro Glu Glu Glu Asp Val Gly
85 90 95
Leu Gly Met Glu Leu Gly Tyr Ala Leu Ser Gln Gly Lys Tyr Ile Leu
100 105 110
Leu Val Ile Pro Asp Glu Asp Tyr Gly Lys Pro Ile Asn Leu Met Ser
115 120 125
Trp Gly Val Cys Asp Asn Ala Ile Lys Ile Ser Glu Leu Lys Asp Phe
130 135 140
Asp Phe Asn Lys Pro Arg Phe Asn Phe Tyr Asp Gly Ala Val Tyr
145 150 155

<210> 27  
 <211> 149  
 <212> PRT  
 <213> Lactobacillus johnsonii

<400> 27
Met Ala Gly Trp Phe Thr Glu Thr Gln Asn Lys Ala Tyr Lys Asp Ala
1 5 10 15

Met Ser Ala Leu Asn Ala Asn Pro Thr Ile Asp Leu Glu Asn Ser Tyr  
 20 25 30

Val Pro Leu Gln Asn Gln Tyr Lys Asp Ile Arg Val Asp Glu His Pro  
 35 40 45

Glu Tyr Leu His Asp Lys Glu Trp Ala Gln Ala Thr Tyr Asn Gly Asp  
 50 55 60

Leu Val Gly Ile Lys Thr Ser Asp Val Met Leu Gly Val Tyr Val Pro  
 65 70 75 80

Lys Glu Glu Asp Val Gly Leu Gly Met Glu Leu Gly Tyr Ala Met Ser  
 85 90 95

Gln Gly Lys Tyr Val Leu Leu Val Ile Pro Asp Glu Leu Tyr Gly Glu  
 100 105 110

Ser Ile Asn Leu Met Ser Trp Gly Val Ala Asp Asn Val Ile Lys Met  
 115 120 125

Ser Glu Leu Ala Thr Phe Asp Phe Asn Arg Pro Arg Tyr Asn Phe Tyr  
 130 135 140

Asp Gly Ala Val Tyr  
 145

<210> 28  
 <211> 157  
 <212> PRT  
 <213> Lactobacillus leichmannii

<400> 28

Met Pro Lys Lys Thr Ile Tyr Phe Gly Ala Gly Trp Phe Thr Asp Arg  
 1 5 10 15

Gln Asn Lys Ala Tyr Lys Glu Ala Met Glu Ala Leu Lys Glu Asn Pro  
 20 25 30

Thr Ile Asp Leu Glu Asn Ser Tyr Val Pro Leu Asp Asn Gln Tyr Lys  
 35 40 45

Gly Ile Arg Val Asp Glu His Pro Glu Tyr Leu His Asp Lys Val Trp  
 50 55 60

Ala Thr Ala Thr Tyr Asn Asn Asp Leu Asn Gly Ile Lys Thr Asn Asp  
 65 70 75 80

Ile Met Leu Gly Val Tyr Ile Pro Asp Glu Glu Asp Val Gly Leu Gly  
 85 90 95

Met Glu Leu Gly Tyr Ala Leu Ser Gln Gly Lys Tyr Val Leu Leu Val  
 100 105 110

Ile Pro Asp Glu Asp Tyr Gly Lys Pro Ile Asn Leu Met Ser Trp Gly

115

120

125

Val Ser Asp Asn Val Ile Lys Met Ser Gln Leu Lys Asp Phe Asn Phe  
130 135 140

Asn Lys Pro Arg Phe Asp Phe Tyr Glu Gly Ala Val Tyr  
145 150 155

&lt;210&gt; 29

&lt;211&gt; 168

&lt;212&gt; PRT

<213> *Lactobacillus fermentum*

&lt;400&gt; 29

Leu Lys Asn Thr Asp Pro Val Ala Asn Thr Lys Ile Tyr Leu Ala Thr  
1 5 10 15

Ser Phe Phe Asn Glu Glu Gln Arg Ala Arg Ile Pro Gln Ala Leu Ala  
20 25 30

Gln Leu Glu Ala Asn Pro Thr Val Gly Val Val His Gln Pro Phe Asp  
35 40 45

Phe Gln Tyr Lys Asp Ala Arg Val Asp Ser Asp Pro Ala Gly Val Phe  
50 55 60

Gly Ser Leu Glu Trp Gln Ile Ala Thr Tyr Asn Asn Asp Leu Asn Ala  
65 70 75